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THE STRUCTURE OF UKRAINIAN HOUSEHOLD'S CONSUMER SPENDING AS A REFLECTION OF THE NATIONAL PRODUCTION'S INTERACTION WITH THE POPULATION NEEDS

Summary. *This article is devoted to the refinement of factors determining the structure of Ukrainian households' consumption spending and approaches to interpretation of shifts in such structure in context of population well-being. It contains analysis with using indexes of real volume of consumption, combined with the localization of causes determining fluctuations in relative prices by commodity group. The results of such analysis should create preconditions to clarify the contribution of certain industries and commodity groups in the dynamics of consumer welfare.*

In particular, what kind of consequences for the structure of consumer expenditure and volumes of consumption certain product categories would be caused by the various combinations of market and nonmarket prices, government and nongovernment suggestion? What impact of large-scale government program to provide free goods and services will have on the consumption patterns?

It was obtained that the critically high share of food expenditure converts such expenditure into a powerful reserve of increasing the consumers' demand for other goods and services, including whose, which share in total spending would be increasing in case of income growth according to Engel's law.

Key words: *consumption pattern, amount of consumption, household's expenditures, income elasticity of demand.*

Problem statement. The main questions of that research are what kind of consequences for the structure of consumer expenditure and volumes of consumption certain product categories would be caused by the various combinations of market and nonmarket prices, government and nongovernment suggestion? What impact of large-scale government program to provide free goods and services will have on the consumption patterns? How this impact is depended by way of implementation of these programs (subsidies to manufacturer or consumer, use unified proposal or regulated prices, governmental production, or purchases from private producers, etc.)? How the structure of consumption will be transformed by a supplement of "rational individual choice" with mechanisms of collective choice? What impact on consumption of certain goods categories may be caused by development of sectoral institutions of collective regulation (consumer associations designed to promote the different priorities of consumer choice - environmental, ethical, economic, etc.)?

To answer these questions, in our view, would be useful not only evaluation and explanation the actual distribution of household consumer expenditure, but also track changes in the availability of certain goods for

consumers, coupled with the comparison of real scale their consumption from one to another period of time. We think it would increase the value of knowledge about structure of consumption as a factor of welfare and would help to determine the contribution of different sectors in the enhancement of the welfare.

Literature revue. The vast majority of current research in consumer spending of households has considered them as a dependent parameter, reflecting the impact of factors, among which there are almost always two mandatory: income (sometimes - the total expenditure) of households and relative prices by commodity groups. Specificities of the individual studies are largely linked to choice of additional factors, included in the model and structure of mathematical tools, used for the simulation. The similar generalizations is contained in the (Chai, Rohde and Silber, 2014: 3): “The predominant method used in applied studies of demand has been the demand systems approach, in which a system of equations is used and the dependent variable is household spending on a particular good (usually expressed as a budget share), while the independence variables are the relative prices of other goods, household income (discussed below) and the household’s demographic characteristics. The core theory underpinning this approach is based on a view that these expenditures are an outcome of a single, representative household that maximizes its utility in each period by spending on the observed categories according to a linear budget constraint”.

Such researches are based mainly on the works of Theil, Slutsky, Working, Hicks, which have been transformed into such prevalent tools as multistage budgeting, model Florida-Preference Independence (PI) and Florida-Slutsky model. Illustrative examples of such tools’ application for the study of national consumption patterns and their comparative analysis are given by works (Seale and Regmi, 2006; Muhammad, Seale, Meade, and Regmi, 2011; Clements and Qiang, 2003).

The results of these studies have confirmed that levels of income and relative prices have high explanatory power regarding the differentiation of consumer spending patterns of households around the world. The results obtained have high value in the context of explaining consumer response to fluctuations in relative prices and income (through evaluation the relative prices and income elasticity of demand for different product groups) as well as in the context of predicting potential of growth for each industries, which are determined by patterns of consumer spending (as a significant component of aggregate demand).

However, panel studies which were conducted with using a broad base of national data, have ignored specific of national mechanisms for rationing access to goods, such as the role of governmental suggestion of free goods and services, the national rules and regulations of interaction between producers and consumers and many others. In the most abstract form, our idea may be expressed as: to supplement the panel research with studies of household

spending patterns in some national circumstances, taking into account the impact of the free offer of goods and government subsidies to households. In addition, we want to try to estimate the impact of specific national institutions that govern individual or collective (in respect of goods, consumption of which are the result of collective choice mechanisms) consumer behavior.

After all, for research the link between changes in consumption patterns and levels of household wealth commonly are using practically only two principles.

The first thesis that households with relatively lower income are characterized by relatively lower diversification of consumer spending, primarily because they spend relatively more of their income on food. This thesis was confirmed by numerous empirical studies since classic Engel's works, to a recent models of consumer behavior: the share of expenditure on food (expressed by proportion of expenditure on food to income) tends to decrease with income growth (Chai, Rohde and Silber, 2014; Clements, Wu and Zhang, 2004; Turi, Masuda and Goldsmith, 2009; Muhammad, Seale, Meade and Regmi, 2011).

A second thesis (in work (Chai, Rohde and Silber, 2014) – basic stylized fact): income growth is accompanied by increasing diversification of consumer spending, and a leading role in this process plays reducing the share of expenditure on food. The most radical expression of this thesis was the "strong" wording of Engel's Law, "doubling the income of a typical (representative) household is accompanied by a decline in the share of household expenditure on food by 10 percentage points (Theil, Chung and Seale, 1989)

Such diversification is associated with extension of consumer's choice and enhancement well-being of typical subject of demand. For example, in (Clements, Wu and Zhang, 2004) the proverb is quoted that "variety is the spice of life" and growth of consumer's spending diversity is considered like manifestation of economic opportunities extension in consumers behavior.

We propose to use assessment of the real change in amount of consumption and relative prices to determine the "scenario", under which the changes of spending proportion occurs and refine their impact on public welfare. So increase of expenditure on a commodity group may reflect the result of lower its relative prices, accompanied by elastic expansion of demand, as well as the result of relative price increase, in conditions of price inelastic demand on this commodity group. Clearly, these two scenarios will have different effects on the welfare and conditions of reproduction of the human potential of society.

In turn, in the context of assessing the contribution of a branch in changing of consumer welfare, the combination of reduction in the relative price with elastic expansion in demand may be a result of increasing production capabilities, which ensured the growth of commodity group availability as well as be caused by substitution of higher quality (and expensive) by goods of less quality (and cheaper). The latter result can be provided by changes in structure

of import due to changes in the national currency, or by large-scale government programs to support production that diverted resources away from solving other social issues. It is clear that the assessment of social outcomes from the industry in the first, second and third cases will be different.

Aims of article. Proposed research may serve as a complement for global panel models (through defining the mechanisms of manifestation the general laws of consumer behavior in certain national conditions) and clarification of "trajectories", "scripts", under which global patterns of consumer behavior appear in certain national economy.

Such complement is important because the category of "relative price" and "volume of demand" in the Global panel studies do not take into account the qualitative differences in ways for rationing access to different goods. For instance, concerning "Clothing and footwear" prices and volumes are considered as integral result of thousands processes of individual choice. But regarding education or health, the relative prices and demand volumes express the results of collective (even social) choice with its special "nonprice" mechanisms of consumers and producers interaction. In the latter case, such results express more patterns of political interaction than the balance of willingness to pay and the production costs. Thus, it reduces the explanatory power of the models which have basis on "identity" nature of consumer choice on different groups of goods, but in the same time creates subject for in-depth research.

That is why we consider it useful to create analytical instruments for deeper understanding of the relationship between changes in the structure of consumer spending - on the one hand, and shifts in the level of welfare; distribution of burden and gain from fluctuations in relative prices between social groups; changes in the availability of various goods and services for the "representative" household – on the other.

For that we propose the following direction of development the common approaches to analyzing the structure of consumer spending.

1) Supplement the analysis and modeling of the structure of consumer spending with using share of commodity groups in the consumer budget by analysis with using indexes of real volume of consumption, combined with the localization causes of fluctuations in relative prices by commodity group. The result should create preconditions to clarify the contribution of certain industries and commodity groups in the dynamics of consumer welfare.

2) For the goods categories, have been produced with a large-scale government supplement of private suggestion, we proposed to study the dynamic of real volume of consumption and relative prices, coupled with changes in the principles, objectives, priorities and levers of government policy in coinciding sectors of economy. It should promote to clarify the evaluation of government programs due taking in account the rate of growth consumption and availability of goods and services for different segments of the population.

The main materials of research. Over the last decade (2005 – 2015) Ukraine steel to be one of the few countries in the world where periods of growth and improving of the public welfare have been periodically leveled by steep "failure" of GDP and productivity. The amount of real consumer spending in 2013 (the last year before the military conflict in the east of Ukraine) were 146.6% of the same indicator of 2005. Two years with a military conflict waged in Ukraine have reduced to nothing positive trend: Ukrainian real consumer spending of households in 2015 were only on 2% higher than in 2005 and compared to 2006 – such spending were lower by 5.2% (see annex 1).

Such multidirectional trends in the size of real consumer expenditures and their high variability differs Ukraine from the majority of other countries and provides a valuable opportunity to find out how to change the structure of consumer spending not only in case of household's purchasing power growing but in conditions of reducing the economic opportunities of households.

We appreciated the dynamics of real amount of consumption by widely aggregated commodity groups over the past 10 years (annex 1 and Fig. 1).

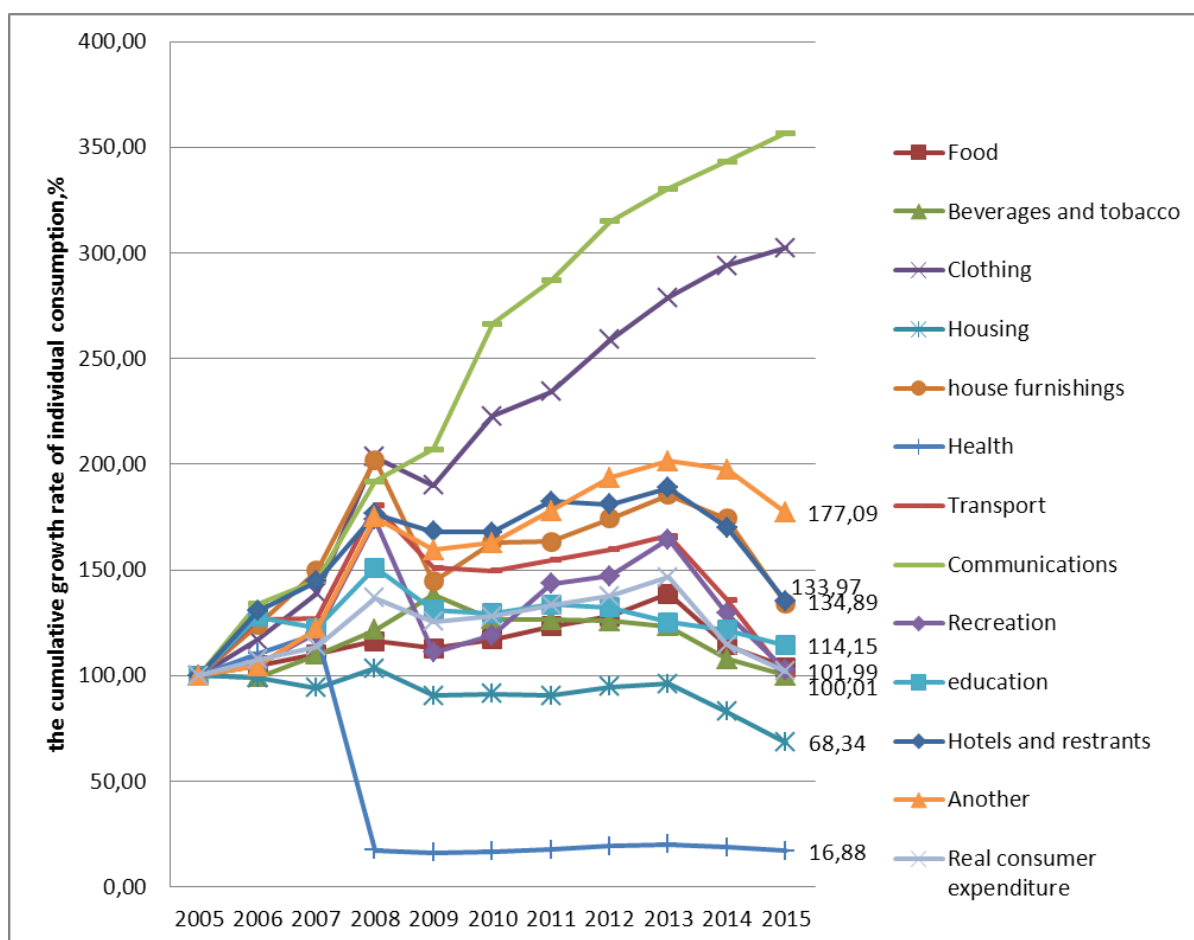


Fig. 1. Changes in real amount of consumption of main commodity groups by ukrainian households during 2005 - 2015 years

During this period clearly traced four stages, which are differed by the shifts in level of income impact on consumption patterns of Ukrainian households.

First – enough dynamic growth of real amount of consumption in almost all goods categories in the period 2005 – 2007 years, which generally brings together the dynamics of real consumer spending in Ukraine with the global trends.

The second stage – the first "failure" of income and the scale of consumption – 2008 – 2009's, when the Ukrainian economy turned out most vulnerable (by reduce the volume of GDP) to the global financial crisis and reducing of consumption for the various commodity groups were significantly differentiated.

The third stage - moderate growth of the size of total consumer spending for 2010 – 2013 years, which was accompanied by minimal increasing or stabilization of real consumption by the main commodity groups.

Finally, the fourth stage – the second "failure" of real total consumption spending and stagnation scale of consumption for almost all types of goods on background of the political crisis and military conflict in Ukraine.

The decisive feature of the structure of consumer spending Ukrainian households – is pronounced dominance of spending on food. Over the researched period the share of food in Ukrainian household consumption spending was varying by 56,6% (in 2005) to 48,9% (in 2008), while the decline in real consumer spending in 2015 raised the share of expenditure on food to 53,1%, almost to the level of 2006 (Fig. 2).

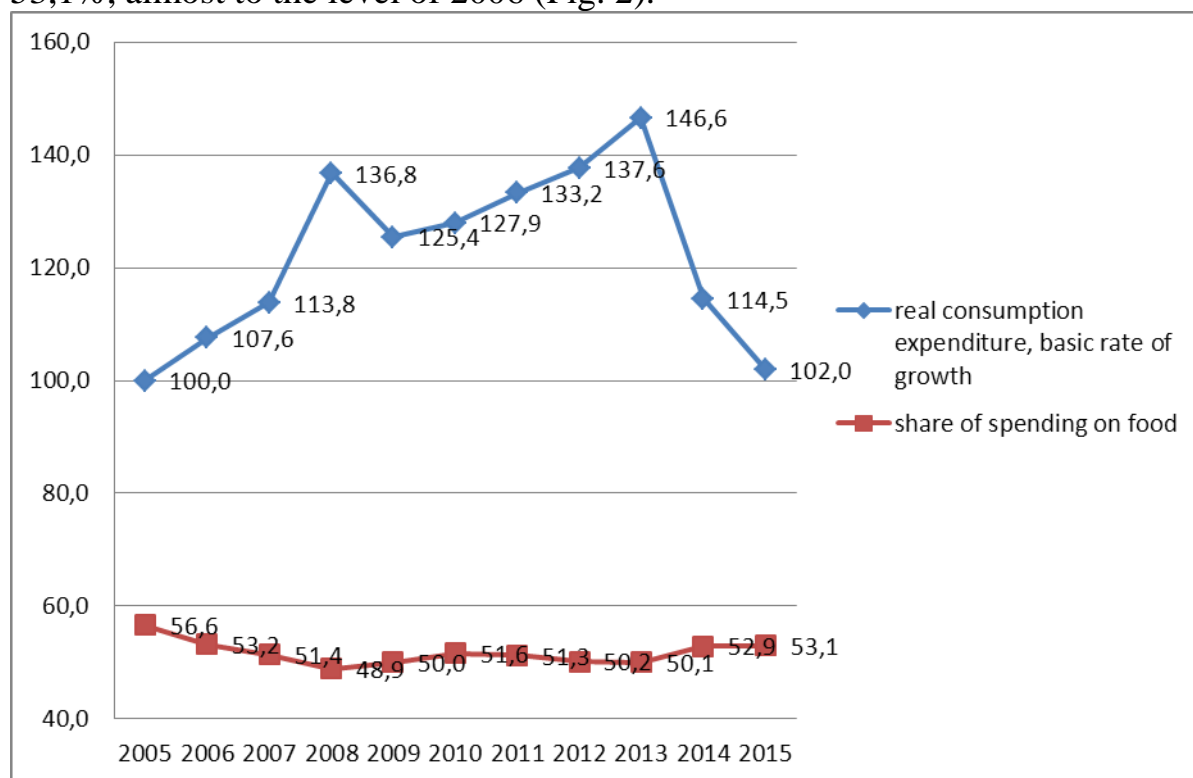


Fig. 2. Dynamics of real consumption spending and share of spending on food, %

The great similarity of real total consumption spending with spending on food is also has considerable importance for understanding Ukrainian household consumption patterns.

Up to 2008 trend of real total consumer spending and the extent of food consumption were consistent with the basic theoretical concepts for explaining progress of consumption patterns. According to Engel's Law, on the background of growth of real consumer spending the increase on food consumption was observed, but it was slower than increasing total consumer spending. As a result, the share of expenditure on food have been reduced.

Verification of compliance "strong formulation of Engel's Law" requires more data, but in the period 2007 – 2008 years dynamics of total expenditure and spending on food was formed in such way, that preservation of this dynamics during subsequent periods would allow to even faster reduction share of food than 10 percent points in response to doubling the size of real income (consumer spending).

However, Ukraine's vulnerability to the global financial crisis has led to a radical change of trends: instead of increasing of differences between graph of real total consumer spending and the real spending on food, their convergence is observed since 2009 until 2013. After 2013 the dynamics of both graphs become almost identical (Fig. 3).

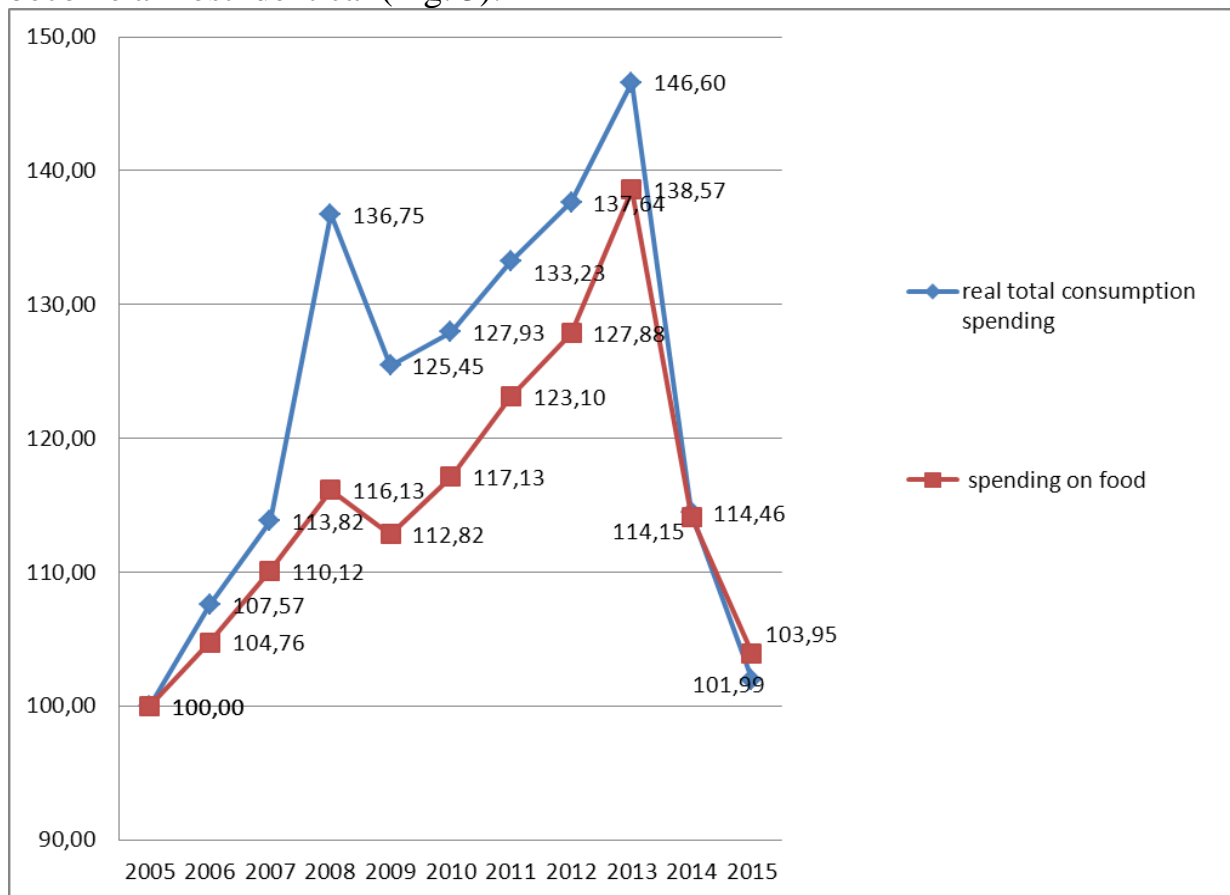


Fig. 3. Dynamics of real total consumption spending and real spending on food, basic rate of growth, % (2005 = 100%)

This consistent (in two stages - with start after the first "failure of growth" and the end – during the recent economic stagnation) oncoming of dynamics of real food consumption to total consumer spending shows that the crisis in the Ukrainian economy has returned households at a time when spending on food was a dominated part of consumer expenditure. Improving the quality of food has become a leading priority for the majority of the population and we expect that increase of Ukrainian households incomes in the short term will be spent mainly on improving food provision. Thus, reduction of household's marginal propensity to spend additional income on food, which was observed till 2008, was leveled by falling revenues and a decrease in the availability of food in subsequent years.

In dependence on growth rate of real consumptions' amount we have selected three groups of goods categories.

The first group includes commodity categories which cumulative growth rate of real consumption rather close to the real growth rate of households' total expenditures. The formal confirmation of such similarity was that average for retrospective period growth rate for such categories is different from the average growth rate of real consumption spending less than two mean-square deviations for timeseries of total consumer spending (Fig. 5).

The second group covers a categories of goods which have rate of growth real amount of consumption significantly faster than total real household expenditures (geometric mean for 11 years growth rate exceeds this figure of real growth rate of total spending more than on two mean-square deviation - Fig. 6).

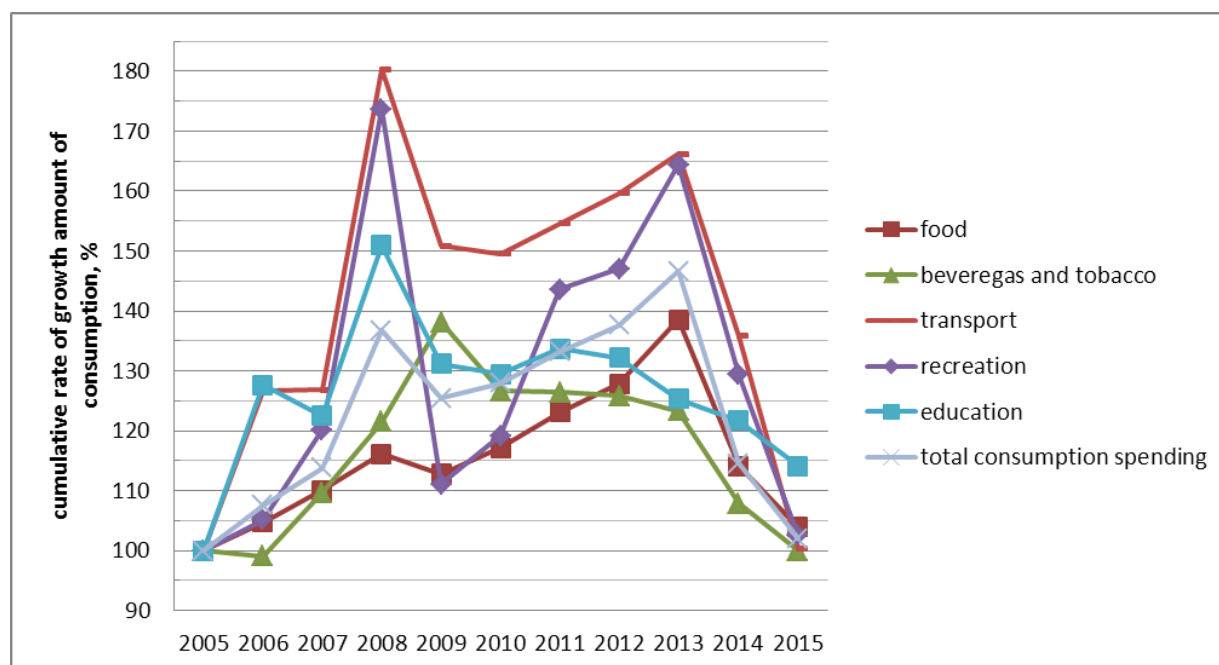


Fig. 5. Consumption of goods categories which have rate of growth similar with real total consumption spending

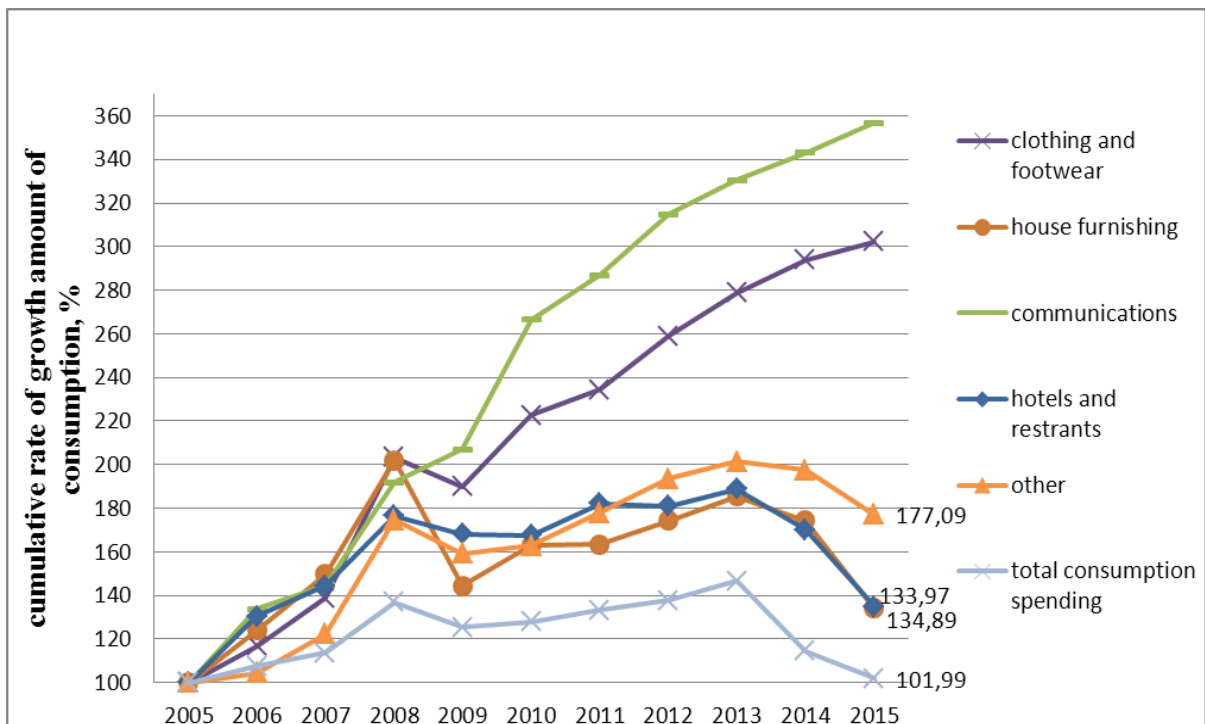


Fig. 6. Consumption of goods categories which have rate of growth bigger than real total consumption spending

The third group includes the goods categories which have rate of growth of amount of consumption considerably lower than total consumption expenditure (geometric mean for 11 years growth rate is below than this figure for real total expenditures more than two mean-square deviation - Fig. 7).

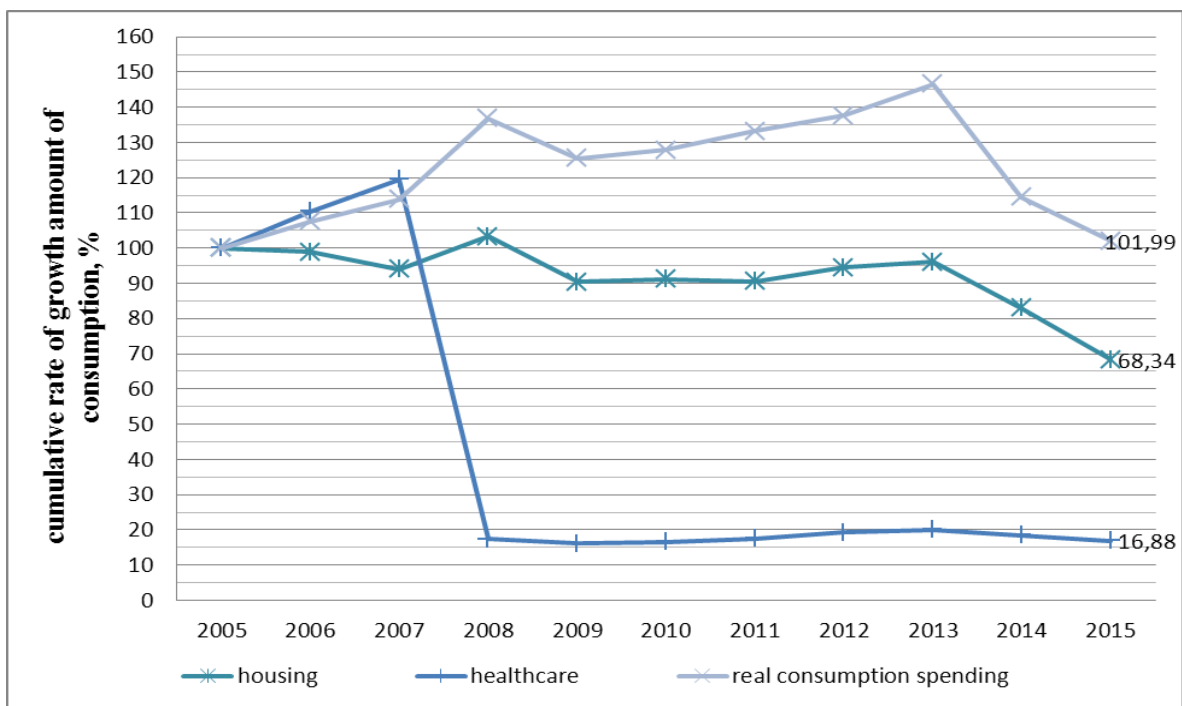


Fig. 7. Consumption of goods categories which have rate of growth significantly lower than real total consumption spending

The distribution between these three groups, mostly conforms to the "canonical" vision of two main factors, determining the structure of consumer spending - income (total spending) and relative prices (Fig. 8). The two goods categories with the highest growth rate of consumption (communication and clothing and footwear) have highest rates of relative price decreasing. Over the 11 years their relative prices have fallen by almost 60% (clothing and footwear) and 65,4% (communications). The two goods categories with the highest rate of decline the real amount of consumption are characterized by the highest growth rate of relative prices. Healthcare prices have risen by more than 9 times (we had to separate appropriate drawing – Fig. 9, to not reduce readability of other data), housing, water, electricity and other fuels – almost two and a half times.

The relative prices impact on scale of consumption is mediated by own price elasticity of demand. So for the calculation of demand own price and income elasticity we have built additive function of total consumption spending and relative prices impact on real amount of consumption for major goods categories from consumer's budget.

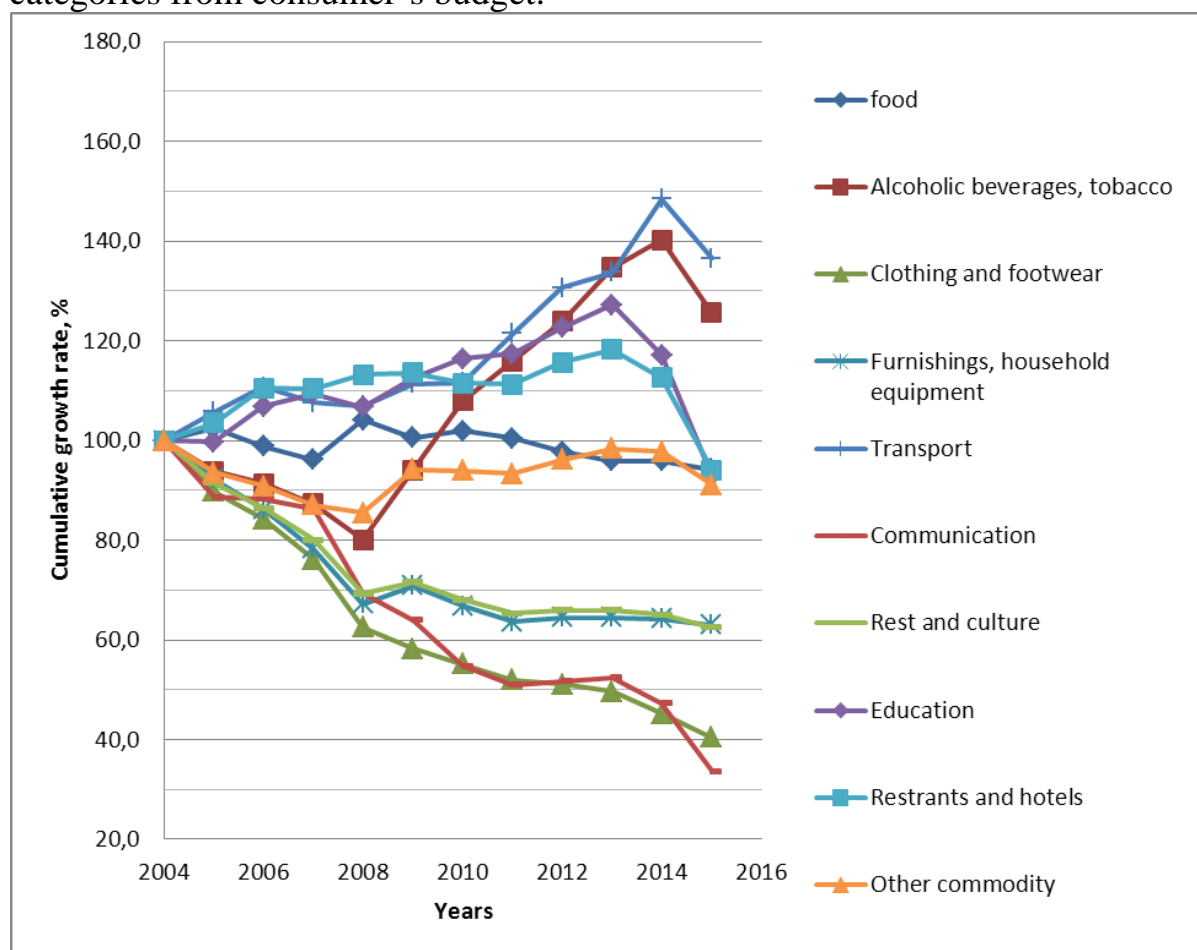


Fig. 8. Cumulative growth rate of relative price

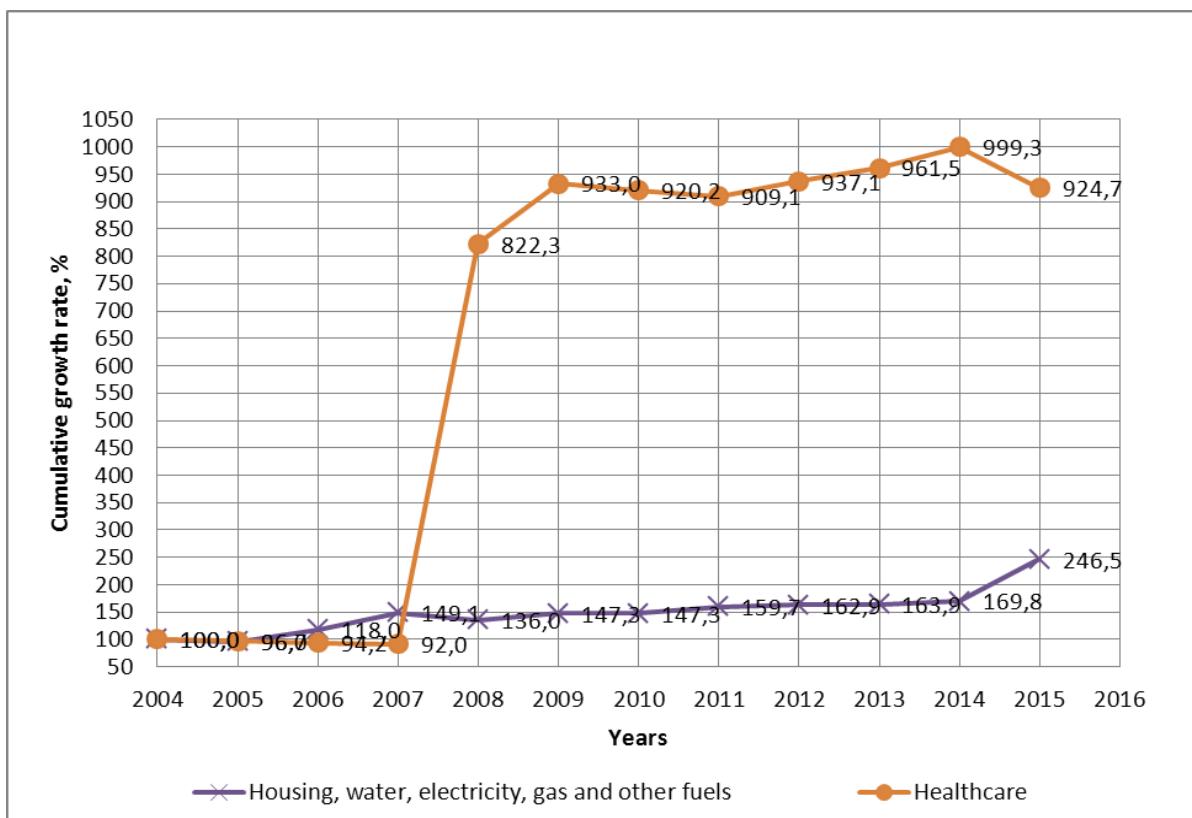


Fig. 9. Cumulative growth rate of relative price of commodities which have experienced with greatest price rising

Conclusions. Summarizing the results of the preliminary analysis, we can note the high size of changing, inherent to the amount of consumption of main commodity groups in consumer's budget. The basic growth rate of consumption amount for food, beverages and tobacco, transport, recreation, education has reached diapason of 130 – 180% in years of highest increasing of income and spending and has returned close to the amount of basic year in 2015. That may be considered as a sign of low level of satisfaction even basic needs of Ukrainian households inasmuch as after considerable growth of households' income and total spending the growth rates of consumption amounts does not decline, respectively the decreasing of income elasticity of demand was not observed.

Similarly may be interpreted the biggest rates of increasing (clothes and footwear; communication) and decreasing (healthcare; housing, water, electricity, gas and other fuels) of consumption amount, inasmuch as excess of such growth rates under rate for total spending will be decisive for defining income (total spending) elasticity of consumption.

After all, critically high share of food expenditure converts such expenditure into a powerful reserve of increasing the consumers' demand for other goods and services, including whose, which share in total spending would be increasing in case of income growth according to Engel's law. However, the release of household spending from food purchasing might be obtained only in case of radically rising of income covering majority of Ukrainian population.

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